FY03 ANNUAL ACCOMPLISHMENTS/ FY04 WORK PLAN

SFAN Inventory and Monitoring Program

I. Overview and Objectives

The San Francisco Area Network (SFAN) includes eight parks with significant natural resources in the central California region. These parks include Eugene O'Neill National Historic Site (EUON), Fort Point National Historic Site (FOPO), Golden Gate NRA (GOGA), John Muir NHS (JOMU), Muir Woods National Monument (MUWO), Pinnacles National Monument (PINN), the Presidio of San Francisco (PRES) and Point Reyes National Seashore (PORE). PRES, FOPO and MUWO are within the boundaries of and are administered by GOGA, so are included as part of GOGA for the purposes of this annual report. The SFAN Network has included two parks that were not identified in the national list of 270 parks with significant natural resources for which the servicewide program was designed. PRES has several areas of significant natural resources, such as Crissy Field, so it was included in the SFAN. The SFAN also included EUON because it is jointly managed with JOMU and is surrounded on three sides by Las Trampas Regional Wilderness Park. Therefore, wildlife may migrate through EUON and significant plant communities occur nearby.

Completion of baseline inventories and development of a long-term monitoring program are highly important to the SFAN because the parks fall within one of the six most significant areas in the nation for biodiversity (Nature Conservancy 2000). In addition, on an international level, the SFAN falls within the 8th most significant "hot spot" in the world for biodiversity at great risk due to rapid human population growth (Cincotta and Engelman, 2000).

The purpose of this document is to report on FY2003 accomplishments and on the proposed FY2004 workplan for the SFAN Inventory and Monitoring (I&M) Program. The service-wide I&M program provided funding to the SFAN for the fourth year of inventories ($147,900) and for the third year for the vital signs monitoring program ($742,800); however this was the first year for full monitoring funding since last year $150,000 was redirected as start-up monitoring funding for another network. In addition, the Water Resources Division I&M program provided the third year of water quality funding ($70,000). The total amount of funds allocated to the SFAN for FY03 was $960,700.

In FY04, the SFAN will receive the fifth and last year of funding for inventories identified in the Inventory Plan ($93,860), funds for the water quality program ($70,000), and, funds for the full complement of monitoring allocated to the network ($742,800), for a total of $906,660.

A. Biological Inventories

Inventories have been selected and initiated based on the priorities established in the *Study Plan to Inventory Biotic Resources of the San Francisco Bay Area National Parks* (2000). Many of the surveys are for multiple years to capture seasonality. Since 2000, a total of twenty-seven inventory projects identified in the Inventory Plan were initiated. By the end of FY2003, nine of these surveys were completed. The inventories are summarized in Appendix 3.

In FY2003, the SFAN worked on a total of sixteen inventories. Five inventories were newly initiated and eleven were continued from the previous year. Thirteen inventories were supported through the inventory account and the balance from monitoring funds. For PINN, the new surveys were for small mammals, herpetofauna, and lichens. Final reports will be prepared for the vascular plant and riparian fauna inventories at PINN. For GOGA, the survey for the salt marsh harvest mouse and Point Reyes jumping mouse was completed. The bat inventory for GOGA was contracted and will begin in FY04. For both GOGA and PORE, surveys continued for rare plants and for coastal biological resources, including nearshore fish. The Lepidoptera survey was initiated at EUON and JOMU in 2003 and will be continued in FY04 with Pacific West Regional funds. Inventories for bats and small vertebrates at JOMU were completed, and surveys for non-native plants continued.

The network documented and cataloged a substantial amount of existing inventory information in 2000. Through the information gathered during this process, the Technical Steering Committee realized that there remained a significant backlog in documentation required to populate the NPSpecies database and document species presence. Therefore, data mining was restarted in FY03 and will continue through FY04.

As authorized under the initial guidance provided by WASO, some monitoring funds were used for projects identified in the Network's *Inventory Study Plan* for which there were no allocated Inventory funds. The vital signs monitoring account supported five inventories. At GOGA, two inventories of sensitive species were completed (the California freshwater shrimp (*Syncaris pacifica*), and the salt marsh harvest mouse (*Reithrodontomys raviventris*). Two mapping projects were funded to support vital signs protocol development, including wetland mapping at GOGA and vegetation mapping at PINN. Vital signs monitoring funds also supported a contract to begin the marine sub-tidal and deep-water inventory for GOGA and PORE.

The SFAN will not initiate new inventories using funds from the service-wide I&M program in FY04. I&M Program funds will be used to complete inventories of rare plants and coastal biological resources at GOGA and PORE and of lichens and small mammals at PINN, and to continue surveying marine sub-tidal and deepwater habitats of GOGA and PORE. The Network will continue data mining, concentrating on data entry and certification of accuracy.

Objectives for Biological Inventories:

1. Compile and evaluate existing documents, specimens, and spatial information for each park into standard NPS databases, and ensure such information is accurate.
2. Complete the documentation of 90% of vertebrate and vascular plant species in the parks through targeted field investigations and ensure that the species are accurately documented and vouchered.
3. Inventory taxa of special interest identified in the Network's *Inventory Study Plan* and develop spatial distribution maps and estimates of abundance or condition.
4. Complete baseline vegetation mapping for the Network.

B. Vital Signs Monitoring

The SFAN has been working since 2001 towards development of the Monitoring Plan, including hiring key personnel and conducting "vital signs" workshops. In FY2001, the network hired an I&M network coordinator and in FY2002, hired a network data manager and network biological technician to coordinate these activities. The data manager and the biological technician were critical in compiling existing information relevant to development of the monitoring plan and in making the information accessible. The biological technician represents the small parks (EUON and JOMU), as the sole natural resource specialist.

In FY03, the Network held a vital signs workshop and developed a prioritized list of vital signs indicators. The conceptual model was redesigned based on comments from peer-reviewers of the Phase I Report. Outside specialists participated in the network vital signs workshop in March, where proposed indicators from the park scoping workshops and the conceptual models were presented. Specialty "focus" groups" evaluated the recommended indicators from the workshop and developed worksheets for each indicator. Worksheets contained the justification for selection, proposed monitoring objectives, method(s), monitoring frequency, threshold, and management response. The data manager developed a program to use the Internet and SFAN web site for ranking the indicators. The web-based ranking was held in late June and involved past workshop participants, representatives from adjacent land management agencies, and scientists with special expertise. In July, the Technical Steering Committee evaluated the scoring and made adjustments to address management concerns. This was approved by the Board of Directors and became the prioritized list of vital signs indicators for monitoring. The Technical Steering Committee developed the FY04 work plan from this prioritized list. An ecologist was hired for part of the year to work exclusively on the Phase II report.

For FY03, several taxa were identified for which ongoing monitoring programs existed and that were likely candidates for vital signs indicators. The servicewide WASO I&M Program approved funding of these ongoing monitoring programs, with the stipulation that draft protocols and MS Access database templates be provided by the end of the fiscal year. The draft protocols and databases were completed for six indicators – landbirds, raptors, northern spotted owls, western snowy plovers, salmonids and stream fish assemblages, and pinnipeds.

In FY04, the Network will concentrate on the development and/or peer-review of protocols for the top group of vital signs indicators. The six protocols that were

developed in FY03 will be peer-reviewed in the winter or spring of 2004, and another four, in the spring of 2004. Many of these indicators have protocols that were developed by other agencies and are already well-established, regional monitoring programs. In addition, the Network will use specialty "focus groups" to evaluate protocols and sampling strategies for another five to ten vital signs indicators in 2004. Focus groups will be composed of NPS personnel, other agency or non-government agency specialists, and university scientists. Some of the protocols may be ready by the end of the fiscal year for peer-review, but many will need several years of testing and evaluation. A priority list of indicators and the schedule for protocol development is provided in Appendix 2.

In FY04, the network will implement monitoring of six to ten indicators. These indicators likely will include weather and climate, air quality, salmonid and stream fish assemblages, northern spotted owls, western snowy plovers, pinnipeds, landbirds, raptors and condors, and marine oceanography.

In addition, a biological technician from the data mining team will continue to enter legacy data, conduct QA/QC, and locate additional documentation and voucher specimens. Specialists from NPS, other agencies or organizations, and universities will assist with certification. By the end of the fiscal year, parks will have accurate species lists and natural resource bibliographies as a result of this process. The draft Phase III report will be completed by the end of FY05 and will include protocols for six to ten of the vital signs indicators and a Data Management Plan, as required by the national timeline. SFAN also will work with partners to augment funding and leverage assistance for additional vital signs indicators.

Objectives for monitoring:

5. Develop the organizational structure for and administer the "vital signs" monitoring (VSM) program in an efficient and effective manner.
6. Develop and advance the SFAN VSM program in accordance with currently approved scientific methods including identification of monitoring questions, ecological indicators, measurable objectives, a sampling framework for integrated monitoring and peer review. Includes developing and revising the SFAN Vital Signs Monitoring Plan.
7. Develop protocols, including the water quality indicators, and implement programs to monitor vital signs.

C. Water Quality Monitoring

The NPS Water Resources Division (WRD) provided funding for a third year of water quality monitoring in FY03. The initial development for a long-term Water Quality Monitoring Plan was completed. On-going monitoring programs were continued. In addition, efforts were underway to establish baseline monitoring at the East Bay parks (JOMU and EUON) and in the southern lands of GOGA. Steps were taken toward reducing impairment at PORE with the establishment of a total maximum daily load (TMDL) Sampling Plan. Water quality monitoring continued at GOGA and PORE

beaches. Efforts are underway to resolve issues at locations exceeding bacterial criteria for contact recreation. In addition, the initial stages of planning the weather monitoring program are underway. Weather and climate received a #1 ranking during the prioritization process for vital signs indications, which added further impetus to this program and led to the development of a Weather Workplan.

Efforts to improve water quality in sediment and pathogen (fecal coliform) impaired water bodies will continue in FY2004. Current water quality monitoring programs (including aquatic bioassessment) will be maintained with additional efforts made to evaluate site locations and sampling procedures for long-term monitoring stations. Existing protocols and data management procedures will be evaluated and incorporated into the Quality Assurance Protection Plan (QAPP) and the Data Management Plan. Protocols and procedures will be tested through baseline monitoring that will be initiated at JOMU, EUON, and new GOGA lands. The initial stages of the weather monitoring program (including database development) will be completed in FY04.

Objectives for water quality monitoring:

8. Coordinate development and approval of a long-term water quality monitoring program.
9. Establish and maintain long-term meteorologic and hydrologic monitoring sites and facilitate data management for those sites.

D. Information Sharing and Data Management (NEW)

SFAN made data management a separate component of the FY04 Work Plan because it is necessary for all parts of the I&M program. Databases will be developed and populated as inventories are completed. Database structures will be examined as monitoring and testing of potential indicators are conducted. The databases will meet NPS standards and are the foundation of the scientific knowledge about SFAN parks. Water quality monitoring has additional database management needs.

In addition to the Network Data Manager, FY03 funding supported three park-based data managers (GOGA, PORE, PINN). Support for these positions will continue in FY04. By the end of FY04, the Network will have a Data Management Plan for guidance of future data management in the Network.

Objectives for information sharing and data management:

10. Implement and maintain an integrated GIS and data management program.
11. Develop and implement strategies to share information with Network parks, scientists, and others interested in the Network VSM program.

E. Coordinate With Other Studies

In order to expand knowledge and resource conservation beyond park boundaries, the SFAN program contacted representatives working on state, regional and national programs in order to benefit from information that they have gathered and to share information we have gathered. The All Taxa Biodiversity Inventory (ATBI) of Tomales

Bay is an example of a program from which the I&M program and parks will benefit. The SFAN data manager provided advice about database structure to the ATBI project. Tomales Bay is important for its diverse number of species and is within the boundaries of PORE and GOGA.

The data from several network monitoring programs are already important components of many regional and national programs, including the northern spotted owl, pinniped, salmonid, and water quality monitoring programs. All of the water quality monitoring programs that address the TMDL issues, as well as projects like the Russian River Coho Broodstock Recovery Program, are substantial programs that the SFAN contributes to. SFAN resource specialists are already involved in monitoring for these programs and are providing recommendations for restoration and protection. These programs are described in Section B, Vital Signs Monitoring.

Objectives for coordination:

12. Conduct an All Taxa Biodiversity Inventory (ATBI) of Tomales Bay.